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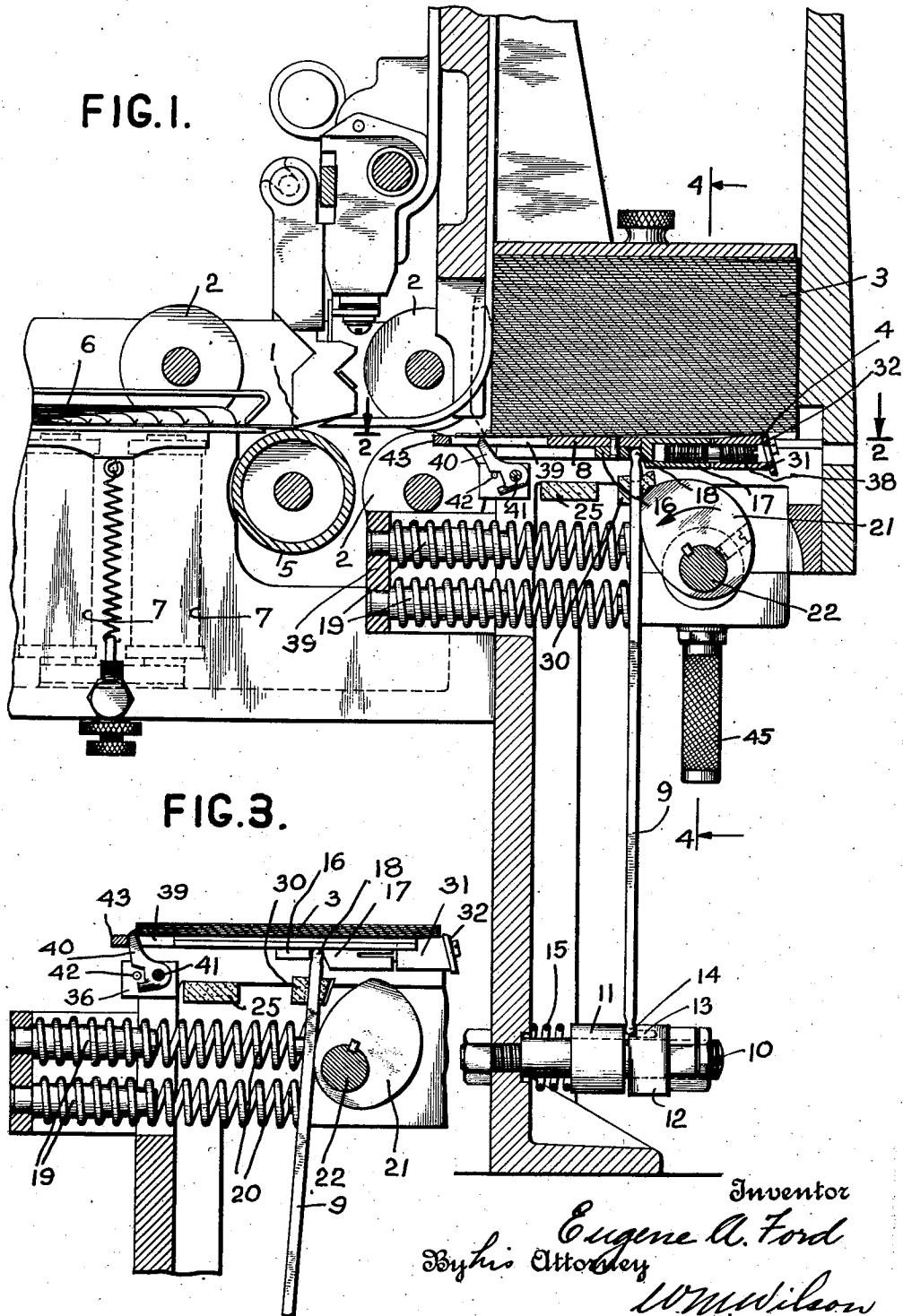
E. A. FORD

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CARD PICKER

Filed Nov. 23, 1928

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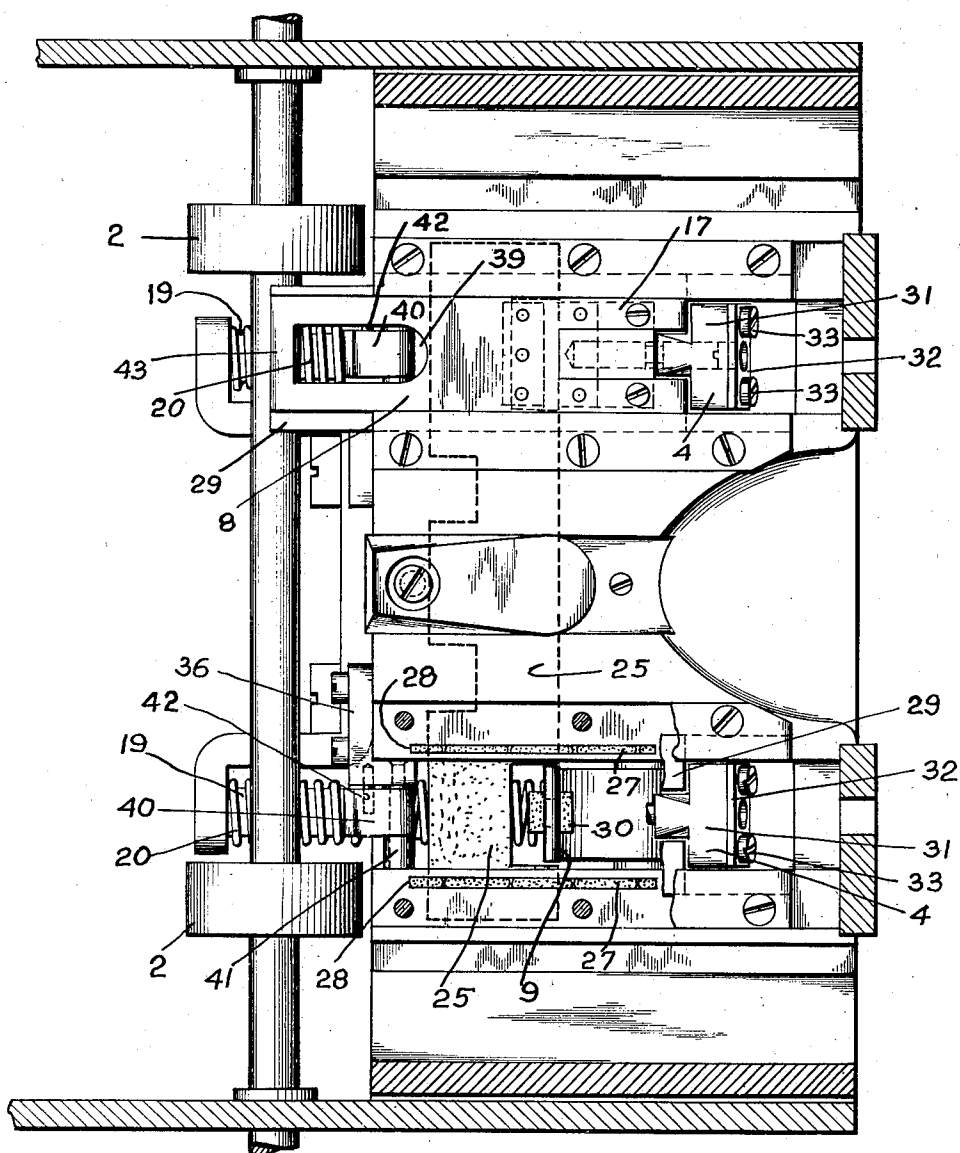
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FIG. 2.



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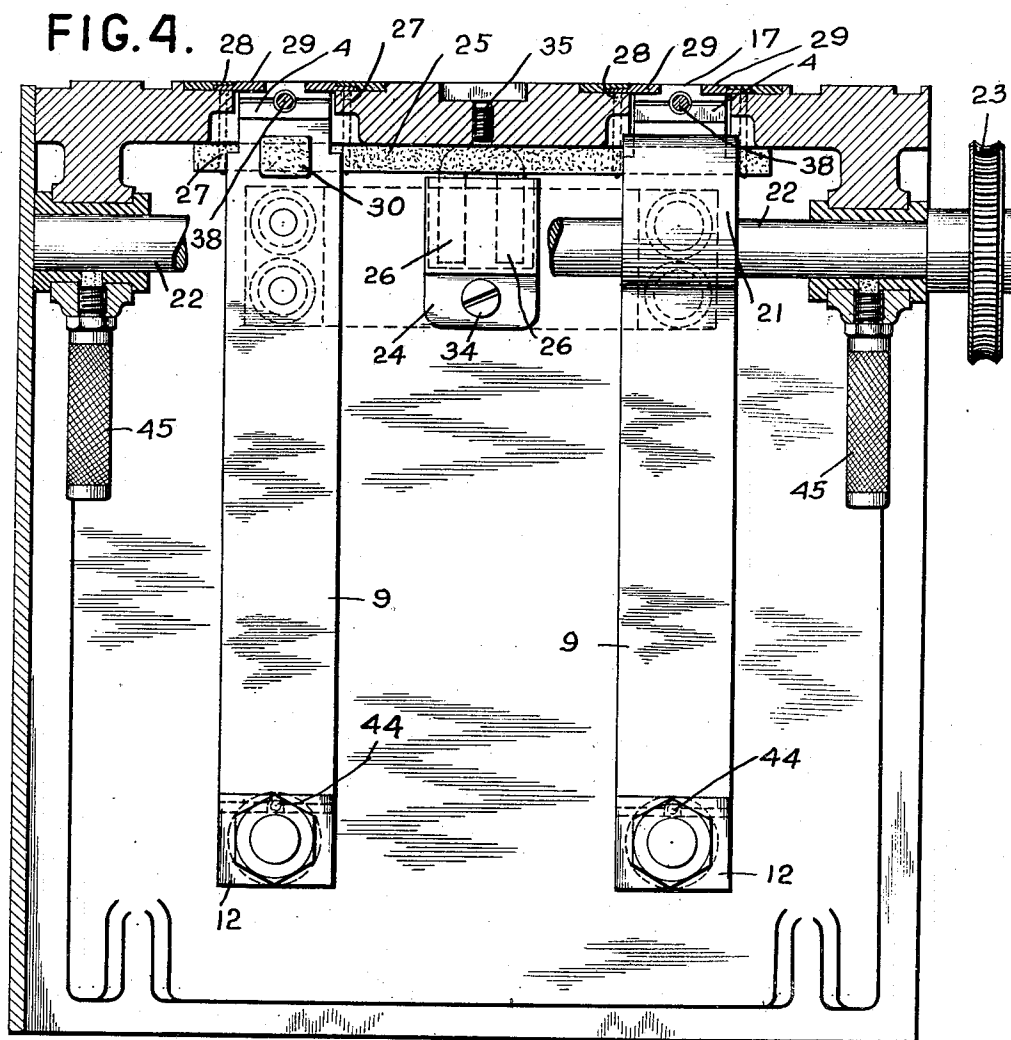
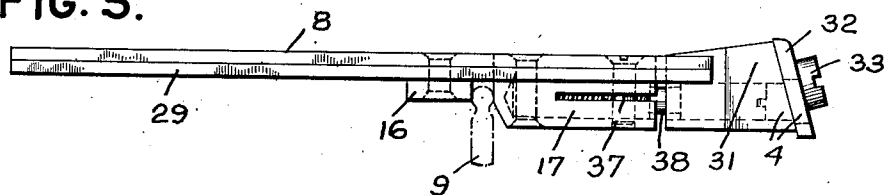


FIG. 5.



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CARD PICKER

Application filed November 23, 1928. Serial No. 321,291.

The present invention relates to a feeding mechanism for record cards which is especially provided for sorting, tabulating, punching and like machines which have to handle cards of a relatively small thickness with great speed and accuracy.

More particularly the invention relates to the picker and its driving mechanism, such as are generally known in the kind of machines in question to pick cards from a card stack and to feed the same to transport rolls.

It is one important object of the present invention to provide an improved picker arrangement which allows the picker to feed only one card to the machine each feeding cycle.

Another object of the invention consists in the provision of means to shift record cards from said stack in a direction opposite the feeding direction towards the picker for the purpose of aligning the same.

A further important object of the invention consists in the provision of means to adjust the picker mechanism relatively to the card stack without adjusting the driving elements for the picker.

Another object of the invention is to provide adjusting means between the picker element and a carrier for said picker element.

Another object of the invention is to provide a driving mechanism for the picker of very quiet and reliable operation.

Still another object is to provide an actuating bar for the picker mechanism, which bar cooperates with cam means to reciprocate the picker.

Other objects and advantages will be hereinafter set forth in the accompanying specification and claims and shown in the drawings which show by way of illustration what is now considered to be a preferred embodiment of the invention.

While the invention is shown and described in connection with a sorting machine, it will be understood that it is in no way limited to this kind of machine but only to such machines as deal with the problem of handling accurately and reliably cards with the characteristic physical features of tabulating rec-

ord cards. Such machines comprise tabulators, sorting and punching machines.

In the accompanying drawings is:

Fig. 1 a cross sectional view of the card picker and its driving mechanism for a sorting machine.

Fig. 2 is a view on line 2—2 of Fig. 1; some parts are broken away to illustrate more clearly the arrangement of certain other parts.

Fig. 3 shows a detail of Fig. 1.

Fig. 4 is a sectional view on line 4—4 of Fig. 1, the cam means being partly shown and partly omitted.

Fig. 5 is a detail of Fig. 1.

The accompanying drawings illustrate the invention as applied to a sorting machine of the well known horizontal type. The cards are fed from the card stack 3 located in the magazine of the machine by the picker 4 to the first set of transport rolls 2 (Fig. 1). On their way through the machine the cards are analyzed by brush 1 and coordinated contact roller 5 and are distributed according to their designation by means of sorting blades 6 into corresponding sorting boxes. The sorting blades 6 are controlled by a magnet 7 which in turn is under the control of the perforated record card.

There are provided two picker elements 4 each of which is fastened to a reciprocally movable picker carrier 8 which is actuated by means of bars 9 (see also Fig. 4). The bars 9 are hinged on their lower ends to an element generally designated at 10 which is fastened to the frame of the machine. The element 10 includes a cylindrical sleeve 11 and a square sleeve 12 which is provided on its upper part with a longitudinal slot 13 and has a cutaway portion so as to form a hinge for the head 14 of its bar, one being coordinated to each picker carrier.

A pressure spring 15 serves to hold sleeve 11 in contact with head 14 thus providing a resilient bearing for the bar 9 and a pin 44 secures the same against side movement. Each of the picker carriers 8 has a piece 16 riveted thereto and between this piece and the front piece 17 forming part of carrier 8, the upper head 18 of bar 9 has its fulcrum. The

machine frame carries two pairs of guiding pins 19 provided for pressure springs 20 holding each bar 9 in contact with the coordinated cam disk 21 which is keyed to the shaft 22 driven by the motor through wheel 23 (Fig. 4). Lubricating means for shaft 22 are generally designated at 45. It is obvious that the bars 9 will oscillate in unison with turning of shaft 22 and the picker 4 will feed the record cards one by one from the stack 3 through the machine. For the cooperating surfaces of bars 9 and cam disks 21 there are provided lubricating means. These comprise an oil reservoir 24 and a strip 25 of felt or any other suitable material which sucks the oil from the reservoir and feeds the same to the cams 21. The strip 25 has two cutout and bent portions 26 which drop into the reservoir and suck the oil from the same to feed the remaining part of strip 25. This strip 25 is fastened by a felt cord 27 to the frame of the machine. This cord is guided through holes of the frame and is located in the upper part of the frame in grooves 28 as will be seen from Figs. 2 and 4. The sliding bars 29 of the picker carrier 8 slide over these grooves and therefore these sliding surfaces will be also fed with oil by means of the felt cord 27 provided in the grooves 28.

The bars 9 have a slot on their upper ends into which a felt piece 30 is forced which coacts on the one side with the cam disk 21 and on the other side with the felt strip 25. The slanted part of felt 30 which cooperates with cam disk 21 touching this disk once each machine cycle and the disk will be oiled by this felt 30. The felt 30 in turn engages the felt strip 25 in the extreme left position of bar 9 (see Figs. 1 and 3) and receives oil from this strip. The oil reservoir 24 is fastened to the machine frame by screw 34 and may be filled through a hole 35 in the machine frame (Fig. 4) which normally is closed by a pin screw.

To provide easy and quick adjustment of the picker without adjusting the driving means as for instance the cam disk, there are provided adjusting means (Figs. 1 and 5) between the picker carrier 8 and the picker 4 which consists of the knife holder 31 and the picker knife 32 fastened to the holder 31 by means of screws 33. To the carrier 8 is riveted element 17 which is provided with a slot 37 and an internal screw thread. Also the knife holder 31 is provided with an internal screw thread but in opposite direction to that in element 17, (see also Fig. 1). The adjusting screw 38 has two opposite screw threads the one cooperating with element 17 of carrier 8 and the other cooperating with a knife holder 31. It is obvious that by turning the screw the knife 32 may be adjusted relatively to the carrier 8 in either direction of the feeding path. For insertion of the

screw driver for screw 38 there are provided holes in the knife 32 and also in the front part of the machine frame as will be recognized from Fig. 1.

The present machine also provides means to align the cards prior to each picking operation. The picker knives project into the card magazine a sufficient distance to feed the lowermost card only as long as the rear edges of the cards are in alignment. But the movement of the lowermost card tends to carry along the one above it through friction. When this happens the forward edge of this card may jam against the throat and prevent its proper feed. Also this card above the one being fed may be displaced sufficiently to permit the rear edge of the card above it to be engaged by the picker knives on their next operation thereby causing jamming. The cards according to the present invention are therefore realigned prior to each picking operation by the following means. The carrier plates 8 are provided on their front end with slots 39 (Figs. 1, 2 and 3) into which passes a pawl 40 which is pivoted to a holder 36 fastened to the machine frame; pawl 40 pivots upon pin 41 and is limited in its movement in either direction by stop pin 42.

As will be seen from Fig. 1 the pawl 40 will not affect feeding of the record cards in feeding direction when the picker is moved from its extreme right to its extreme left position. When, however, the picker returns and nears its extreme right position the pawl 40 will be engaged by cross part 43 of carrier plate 8 and the pawl will be turned in clockwise direction and consequently align the stack of cards if the lowermost ones are out of alignment so that the lowest card is entirely or nearly in engagement with the knife 32 which then feeds only the lowest card directly through the throat when the picker reverses its movement.

While there has been shown and described and pointed out the fundamental novel features of the invention as applied to a single modification it will be understood that various omissions and substitutions and changes in the form and details of the device illustrated and in its operation may be made by those skilled in the art without departing from the spirit of the invention. It is the intention therefore to be limited only as indicated by the scope of the following claims.

I claim:

1. In a machine of the character described, a feeding mechanism for record cards comprising a picker, means to move said picker to feed record cards by said picker in one direction and means to positively shift record cards in opposite direction towards said picker to bring said cards into positive alignment before said picker engages the record card to feed the same in the first mentioned direction.

2. In a machine of the character described, a feeding mechanism for record cards comprising a picker, means to reciprocate said picker to feed record cards in the advance direction of said picker and means to positively shift record cards in the return direction of said picker towards the same to bring said cards into positive alignment before it engages the record card to feed the same in advance direction.

3. In a machine of the character described, a magazine for record cards, a picker and means to move said picker to pick record cards one by one from said magazine and to feed the same in one direction and means to positively shift record cards from said magazine in opposite direction towards said picker to bring said cards into positive alignment, before the same engages the record card to feed it in the first mentioned direction.

4. In a machine of the character described, a magazine for record cards, a picker and means to reciprocate said picker from a departing position to feed record cards one by one in advance direction of said picker and means to positively shift record cards in the return direction and during the return movement of said picker towards the departing position of said picker to bring said cards into positive alignment.

5. In a machine of the character described, a magazine for record cards, a picker knife, a carrier therefor, means to reciprocate said carrier from a departing position to pick record cards one by one from said magazine and to feed the same in advance direction of said carrier, a pawl member pivoted to the machine frame and being engaged by said carrier at the end of the return stroke of the same to shift the following record card to be fed from said magazine in return direction of said carrier towards said picker knife.

6. In a machine of the character described, a feeding mechanism for record cards including a picker knife fastened to a knife holder, a carrier for said knife holder, means to actuate said carrier to pick record cards by said knife, and adjusting means to adjust said knife holder relatively to said carrier, said adjusting means comprising an adjusting screw cooperating with a screw thread of one direction with said carrier and with a screw thread of opposite direction with said knife holder.

7. In a machine of the character described, a feeding mechanism for record cards including a picker knife and a holder for said knife, a carrier for said holder, means to reciprocally move said carrier to pick record cards by said picker knife and adjusting means to adjust said holder relatively to said carrier in either direction of the path of said picker knife, said adjusting means comprising an adjusting screw cooperating with a screw thread of one direction with said car-

rier and by a screw thread of opposite direction with said knife holder.

8. In a machine of the character described, a feeding mechanism for record cards, including a card picker carrier, a bar hinged at one end upon a fixed part of the machine frame and having a fulcrum on the other end on said card picker carrier, and a cam coacting with said bar between said hinge and said fulcrum to positively actuate said card picker carrier in feeding direction.

9. In a machine of the character described, a feeding mechanism for record cards, including a card picker carrier, a bar hinged on one end upon a fixed part of the machine frame and having a fulcrum on the other end on said card picker carrier, a cam coacting with said bar between said hinge and said fulcrum to positively actuate said card picker carrier in a feeding direction and yielding means to engage said bar and said cam means.

10. A machine according to the preceding claim wherein said yielding means comprise spring coils, pressing said bar against said cam means.

11. In a machine of the character described, a feeding mechanism for record cards including a card picker carrier, a bar hinged on one end upon a fixed part of the machine frame and having a fulcrum on the other end on said card picker carrier, cam means coacting with said bar between said hinge and said fulcrum to reciprocate said card picker carrier and automatic lubricating means for said bar and cam means which cooperate with each other.

12. A machine according to the preceding claim wherein said automatic lubricating means comprise an oil reservoir, an element for sucking oil from said reservoir, a second element fixed to the bar and engaging said cam means for oiling the same, said second element being fed with oil by said first one when it engages the same in the extreme position of the bar.

13. In a machine of the character described, a feeding mechanism for record cards including a picker, slidable on a frame, a pivoted bar and cam means cooperating therewith to reciprocate said picker on said frame and automatic lubricating means for simultaneously oiling the sliding surface of said picker and said frame, on the one hand and of said bar and cam means on the other hand.

14. In a machine of the character described, a feeding mechanism for record cards, including a picker, a carrier, a threaded support for engaging both carrier and picker, said support providing both means for adjusting said picker in the direction of travel of said picker and means whereby the picker may automatically swivel to conform to the edge of the record cards being fed.

15. In a machine of the character described, a feeding mechanism for record cards, including a picker, a carrier, a threaded

support for engaging both carrier and picker, said support providing means for adjusting said picker in two directions relative to the carrier, one direction being back and forth in the plane of the carrier, the other being angular with respect to the plane of the carrier.

16. In a machine of the character described, a feeding mechanism for record cards, including a picker, a carrier, an axial support engaging both carrier and picker and permitting said picker to rock on said support to conform to the record cards, said support being adjustable to move the picker relative to the carrier in either direction of the path of said picker.

In testimony whereof I hereto affix my signature.

EUGENE A. FORD.

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